

RESULT 1  
A59316  
ghrelin precursor - human  
N;Alternate names: preproghrelin  
C;Species: Homo sapiens (man)  
C;Date: 16-Jun-2000 #sequence\_revision 16-Jun-2000 #text\_change 21-Jul-2000  
C;Accession: A59316  
R;Kojima, M.; Hosoda, H.; Date, Y.; Nakazato, M.; Matsuo, H.; Kangawa, K.  
Nature 402, 656-660, 1999  
A;Title: Ghrelin is a growth-hormone-releasing acylated peptide from stomach.  
A;Reference number: A59316; MUID:20067959; PMID:10604470  
A;Accession: A59316  
A;Status: not compared with conceptual translation  
A;Molecule type: mRNA  
A;Residues: 1-117 <KOJ>  
A;Cross-references: GB:AB029434; NID:g6691571; PIDN:BAA89371.1; PID:g6691572  
A;Experimental source: tissue stomach endocrine cells  
A;Note: submitted to GenBank, June 1999  
C;Comment: Ghrelin secreted by the stomach stimulates the release of somatotropin (growth hormone) from pituitary cells through a G-protein coupled receptor.  
C;Superfamily: motilin  
C;Keywords: hormone; lipoprotein; stomach  
F;1-23/Domain: signal sequence #status predicted <SIG>  
F;24-51/Product: ghrelin #status predicted <MAT>  
F;52-117/Domain: carboxyl-terminal propeptide #status predicted <CTP>  
F;26/Binding site: octanoate (Ser) (covalent) #status experimental

Query Match 100.0%; Score 611; DB 1; Length 117;  
Best Local Similarity 100.0%; Pred. No. 9.3e-55;  
Matches 117; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 MPSPGTVCSLLLLGMLWLDLAMAGSSFLSPEHQRVQQRKESKKPPAKLQPRALAGWLRPE 60  
||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||  
Db 1 MPSPGTVCSLLLLGMLWLDLAMAGSSFLSPEHQRVQQRKESKKPPAKLQPRALAGWLRPE 60

Qy 61 DGGQAEGAEDLEVRFNAPFDVGIKLSGVQQHSQALGKFLQDILWEEAKEAPADK 117  
||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| ||| |||  
Db 61 DGGQAEGAEDLEVRFNAPFDVGIKLSGVQQHSQALGKFLQDILWEEAKEAPADK 117

RESULT 1

GHRL\_HUMAN

ID GHRL\_HUMAN STANDARD; PRT; 117 AA.  
AC Q9UBU3; Q8TAT9; Q9H3R3;  
DT 28-FEB-2003 (Rel. 41, Created)  
DT 28-FEB-2003 (Rel. 41, Last sequence update)  
DT 15-MAR-2004 (Rel. 43, Last annotation update)  
DE Ghrelin precursor (Growth hormone secretagogue) (Growth hormone  
DE releasing peptide) (Motilin-related peptide) (M46 protein)  
DE (UNQ524/PRO1066).  
GN GHRL OR MTLRP.  
OS Homo sapiens (Human).  
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;  
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.  
OX NCBI\_TaxID=9606;  
RN [1]  
RP SEQUENCE FROM N.A. (ISOFORM 1), AND ACYLATION OF SER-26.  
RX MEDLINE=20067959; PubMed=10604470;  
RA Kojima M., Hosoda H., Date Y., Nakazato M., Matsuo H., Kangawa K.;  
RT "Ghrelin is a growth-hormone-releasing acylated peptide from  
RT stomach.";  
RL Nature 402:656-660(1999).  
RN [2]  
RP SEQUENCE FROM N.A. (ISOFORMS 1 AND 2).  
RA Kojima M.;  
RL Submitted (DEC-1999) to the EMBL/GenBank/DDBJ databases.  
RN [3]  
RP SEQUENCE FROM N.A. (ISOFORM 1).  
RC TISSUE=Stomach;  
RA Tomasetto C., Karam S.M., Rio M.-C.;  
RT "Identification of a novel gastric protein m46.";  
RL Submitted (JAN-2000) to the EMBL/GenBank/DDBJ databases.  
RN [4]  
RP SEQUENCE FROM N.A. (ISOFORM 1).  
RA Wajnrajch M.P., Ten I.S., Gertner J.M., Leibel R.L.;  
RT "Genomic organization of the human Ghrelin gene.";  
RL J. Endocr. Genet. 1:231-233(2000).  
RN [5]  
RP SEQUENCE FROM N.A. (ISOFORM 1).  
RX MEDLINE=22887296; PubMed=12975309;  
RA Clark H.F., Gurney A.L., Abaya E., Baker K., Baldwin D., Brush J.,  
RA Chen J., Chow B., Chui C., Crowley C., Currell B., Deuel B., Dowd P.,  
RA Eaton D., Foster J., Grimaldi C., Gu Q., Hass P.E., Heldens S.,  
RA Huang A., Kim H.S., Klimowski L., Jin Y., Johnson S., Lee J.,  
RA Lewis L., Liao D., Mark M., Robbie E., Sanchez C., Schoenfeld J.,  
RA Seshagiri S., Simmons L., Singh J., Smith V., Stinson J., Vagts A.,  
RA Vandlen R., Watanabe C., Wieand D., Woods K., Xie M.-H., Yansura D.,  
RA Yi S., Yu G., Yuan J., Zhang M., Zhang Z., Goddard A., Wood W.I.,  
RA Godowski P.;  
RT "The secreted protein discovery initiative (SPDI), a large-scale  
RT effort to identify novel human secreted and transmembrane proteins: a  
RT bioinformatics assessment.";  
RL Genome Res. 13:2265-2270(2003).  
RN [6]  
RP SEQUENCE FROM N.A. (ISOFORM 1).  
RC TISSUE=Blood;  
RX MEDLINE=22388257; PubMed=12477932;

RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,  
RA Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,  
RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,  
RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,  
RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,  
RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,  
RA Brownstein M.J., Ussdin T.B., Toshiyuki S., Carninci P., Prange C.,  
RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,  
RA Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,  
RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,  
RA Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,  
RA Fahey J., Helton E., Ketteman M., Madan A., Rodrigues S., Sanchez A.,  
RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,  
RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,  
RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,  
RA Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,  
RA Schnurch A., Schein J.E., Jones S.J.M., Marra M.A.;  
RT "Generation and initial analysis of more than 15,000 full-length human  
RT and mouse cDNA sequences.";  
RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903 (2002).  
RN [7]  
RP SEQUENCE OF 24-33.  
RC TISSUE=Stomach;  
RX MEDLINE=20389976; PubMed=10930375;  
RA Tomasetto C., Karam S.M., Ribieras S., Masson R., Lefebvre O.,  
RA Staub A., Alexander G., Chenard M.-P., Rio M.-C.;  
RT "Identification and characterization of a novel gastric peptide  
RT hormone: the motilin-related peptide.";  
RL Gastroenterology 119:395-405 (2000).  
RN [8]  
RP REVIEW.  
RX MEDLINE=21203998; PubMed=11306336;  
RA Kojima M., Hosoda H., Matsuo H., Kangawa K.,  
RT "Ghrelin: discovery of the natural endogenous ligand for the growth  
RT hormone secretagogue receptor.";  
RL Trends Endocrinol. Metab. 12:118-122 (2001).  
CC -!- FUNCTION: Specific ligand for the growth hormone secretagogue  
CC receptor type 1 (GHSR) inducing the release of growth hormone from  
CC the pituitary. Has an appetite-stimulating effect, induces  
CC adiposity and stimulates gastric acid secretion. Involved in  
CC growth regulation.  
CC -!- SUBCELLULAR LOCATION: Secreted.  
CC -!- ALTERNATIVE PRODUCTS:  
CC Event=Alternative splicing; Named isoforms=2;  
CC Name=1; Synonyms=Ghrelin;  
CC IsoId=Q9UBU3-1; Sequence=Displayed;  
CC Name=2; Synonyms=del-Gln14-ghrelin;  
CC IsoId=Q9UBU3-2; Sequence=VSP\_003245;  
CC -!- PTM: O-n-octanoylation is essential for activity.  
CC -!- SIMILARITY: Belongs to the motilin family.  
CC -!- DATABASE: NAME=Atlas Genet. Cytogenet. Oncol. Haematol.;  
CC  
WWW="http://www.infobiogen.fr/services/chromcancer/Genes/GhrelinID327.html".  
CC -----  
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CC  
 DR EMBL; AB029434; BAA89371.1; --.  
 DR EMBL; AB035700; BAB19045.1; --.  
 DR EMBL; AJ252278; CAB65733.1; --.  
 DR EMBL; AF296558; AAG10300.1; --.  
 DR EMBL; AY359053; AAQ89412.1; --.  
 DR EMBL; BC025791; AAH25791.1; --.  
 DR PIR; A59316; A59316.  
 DR MIM; 605353; --.  
 DR GO; GO:0005615; C:extracellular space; TAS.  
 DR GO; GO:0005625; C:soluble fraction; TAS.  
 DR GO; GO:0005131; F:growth hormone receptor binding; TAS.  
 DR GO; GO:0007267; P:cell-cell signaling; TAS.  
 DR GO; GO:0007186; P:G-protein coupled receptor protein signalin. . . ; TAS.  
 DR InterPro; IPR006737; motilin\_assoc.  
 DR InterPro; IPR006738; motilin\_ghrelin.  
 DR InterPro; IPR005441; Preproghrelin.  
 DR Pfam; PF04643; motilin\_assoc; 1.  
 DR Pfam; PF04644; motilin\_ghrelin; 1.  
 DR PRINTS; PR01624; GHRELIN.  
 DR ProDom; PD332162; Preproghrelin; 1.  
 KW Hormone; Cleavage on pair of basic residues; Signal; Lipoprotein;  
 KW Alternative splicing.  
 FT SIGNAL 1 23  
 FT PEPTIDE 24 51 GHRELIN.  
 FT PROPEP 52 117 REMOVED IN MATURE FORM.  
 FT LIPID 26 26 O-octanoyl serine.  
 FT VARSPLIC 37 37 Missing (in isoform 2).  
 /FTId=VSP\_003245.  
 FT CONFLICT 72 72 L -> M (IN REF. 6).  
 SQ SEQUENCE 117 AA; 12911 MW; 39C0572EBECA2755 CRC64;

Query Match 100.0%; Score 611; DB 1; Length 117;  
Best Local Similarity 100.0%; Pred. No. 1.1e-54;  
Matches 117; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Result No.	Score	Query				Description
		Match	Length	DB	ID	
1	611	100.0	117	3	US-09-046-479-2	Sequence 2, Appli
2	611	100.0	117	4	US-08-822-897C-2	Sequence 2, Appli
3	611	100.0	117	4	US-09-608-810A-4	Sequence 4, Appli
4	611	100.0	117	4	US-09-404-417A-2	Sequence 2, Appli
5	91	14.9	18	4	US-09-404-417A-11	Sequence

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